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# Quality Engineering Test Report

**SERIES: SD-50B 50W DC-DC SINGLE OUTPUT SWITCHING POWER SUPPLY**

**SAMPLE:**
**A. SD-50B-5 5V / 10A**
**B. SD-50B-12 12V / 4.2A**
**C. SD-50B-24 24V / 2.1A**

| NO | TEST ITEM | TEST CONDITION / SPECIFICATION | RESULT | VERDICT |
|---|---|---|---|---|
| 1 | DC INPUT VOLTAGE RANGE | I/P : TESTING SPEC : 19~36VDC<br>O/P : FULL LOAD | A:15.4~36VDC | P |
| 2 | LINE REGULATION | I/P : 19~36VDC SPEC : A:±0.5%<br>O/P : FULL LOAD B:±0.3%<br>C:±0.2% | A: -0%~+0%<br>B: -0%~+0%<br>C:-0.03%~+0% | P |
| 3 | LOAD REGULATION | I/P : 24VDC SPEC : A:±0.5%<br>O/P : MIN. TO FULL LOAD B:±0.3%<br>C:±0.2% | A:-0.12%~+0.12%<br>B: -0%~+0.05%<br>C:-0.03%~+0% | P |
| 4 | OUTPUT VOLTAGE TOLERANCE | I/P : 19~36VDC SPEC : A:±2%<br>O/P : MIN. TO FULL LOAD B:±1%<br>C:±1% | A:-0.12%~+0.12%<br>B: -0%~+0.05%<br>C:-0.03%~+0% | P |
| 5 | RIPPLE&NOISE | I/P : 24VDC SPEC : A:100mVp-p<br>O/P : FULL LOAD B:120mVp-p<br>C:150mVp-p | A:25mV<br>B: 8mV<br>C: 8mV | P |
| 6 | DC INPUT CURRENT | I/P : 24VDC SPEC : 3A<br>O/P : FULL LOAD | A:2.75A | P |
| 7 | MAX. INRUSH CURRENT | I/P : 24VDC SPEC : NONE<br>O/P : FULL LOAD | A:38.26A | P |
| 8 | O/P VOLTAGE ADJ. RANGE | I/P : 24VDC SPEC : A:4.5~5.5V<br>O/P : MIN. LOAD B:11~16V<br>C:23~30V | A:4.32~6.21V<br>B:9.47~16.30V<br>C:19.5~33.68V | P |
| 9 | SET UP TIME | I/P : 24VDC SPEC : 2.5S<br>O/P : FULL LOAD | A:2000.3mS | P |
| 10 | EFFICIENCY | I/P : 24VDC SPEC : A:73%<br>O/P : FULL LOAD B:75%<br>C:80% | A:77.15%<br>B:79.44%<br>C:82.07% | P |
| 11 | OVER LOAD PROTECTION | I/P : 24VDC SPEC : 105%~150%<br>O/P : TESTING | A:130%<br>B:116.9%<br>C:114.7% | P |
| 12 | OVER VOLTAGE PROTECTION | I/P : 24VDC SPEC : A:5.75V~6.75V<br>O/P : TESTING B:16.8V~20V<br>C:31.5V~37.5V | A:6.12V<br>B:18.17V<br>C:35.17V | P |
| 13 | INSULATION RESISTANCE | SPEC : I/P-O/P 500VDC/100M Ohms MIN.<br>I/P-FG 500VDC/100M Ohms MIN.<br>O/P-FG 500VDC/100M Ohms MIN. | A: I/P-O/P : >100M Ohms<br>I/P-FG : >100M Ohms<br>O/P-FG : >100M Ohms | P |
| 14 | DIELECTRIC / WITHSTAND VOLTAGE | SPEC : I/P- O/P : 1500VAC/ 1 min (10mA CUT-OFF)<br>I/P- FG : 1500VAC/ 1 min (10mA CUT-OFF)<br>O/P- FG : 500VAC/ 1 min (10mA CUT-OFF) | A: I/P-O/P : <2.24mA<br>I/P-FG : <2.36mA<br>O/P-FG : <3.34mA | P |
| 15 | BURN-IN TEST | I/P : 24VDC O/P:FULL LOAD<br>TA : 25.7 °C BURN-IN DURATION : 4 hrs | NON BREAK | P |
| 16 | ENVIRONMENT TEST ( SAMPLE A:) | 1.LOW TEMPERATURE TEST<br>I/P : 18.1 VDC O/P : FULL LOAD<br>AMBIENT TEMPERATURE : -10 °C | AFTER 2 hrs<br>POWER ON OK | P |
| | | 2.HIGH AMBIENT TEMPERATURE FULL LOAD TEST<br>I/P : 37VDC O/P : FULL LOAD<br>AMBIENT TEMPERATURE : 45.4 °C | AFTER 4 hrs<br>NON BREAK | |

NEXT

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>TEST CONDITION / SPECIFICATION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>17</td><td>TEMPERATURE RISE TEST T rise OF PARTS</td><td>A: I/P : 24VDC AFTER 4 hr BURN-IN<br>O/P : FULL LOAD TA : 24.6°C
<table>
<tr><th>POSITION</th><th>P/N</th><th>TEMP</th><th>T rise</th></tr>
<tr><td>Q1</td><td>MAIN TRANSISTOR</td><td>53.2°C</td><td>28.6°C</td></tr>
<tr><td>T1</td><td>MAIN TRANSFORMER</td><td>62.3°C</td><td>37.7°C</td></tr>
<tr><td>D11</td><td>O/P DIODE</td><td>62.5°C</td><td>37.9°C</td></tr>
<tr><td>C34</td><td>O/P FILTER CAPACITOR</td><td>53.0°C</td><td>28.4°C</td></tr>
<tr><td>L1</td><td>O/P CHOCK</td><td>59.3°C</td><td>34.7°C</td></tr>
<tr><td>C5</td><td>I/P FILTER CAPACITOR</td><td>49.3°C</td><td>24.7°C</td></tr>
</table></td><td>P</td></tr>
<tr><td>18</td><td>LIFE CYCLE</td><td>A: SUPPOSE C34 IS THE MOST CRITICAL COMPONENT<br>I/P : 24VDC O/P : FULL LOAD Ta : 25°C Tc34 : 53.4°C Life: 42971 hrs<br>I/P : 24VDC O/P : FULL LOAD Ta : 45.4°C Tc34 : 56.2°C Life: 35390 hrs</td><td></td><td>P</td></tr>
<tr><td>19</td><td>CRITICAL COMPONENT RECORD ( FOR QC INSPECTION REFERENCE ONLY )</td><td>A: FUSE : 6.3AL/250V<br>INPUT DIODE : 1N5401<br>LINE FILTER : LS TF-096B EE-25<br>TRANSFOMER : CK TF-332 EI-28<br>POWER SWITCHER : 2SK889 TO-220<br>OUTPUT DIODE : S305C4M<br>OUTPUT CAPACITOR : 2200uF/16V(v) 105°C HL<br>INPUT CAPACITOR : N.C.C 330uF/100V KMF 105°C<br>P.C.B : SD-50 FR-4 2 OZ DS</td><td></td><td></td></tr>
<tr><th>DATE</th><th>SAMPLE</th><th>TEST RESULT</th><th>TEST</th><th>APPROVAL</th></tr>
<tr><td>980421</td><td>SD-50B</td><td>PASS</td><td>H.C.LIOU</td><td>Max Lin</td></tr>
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